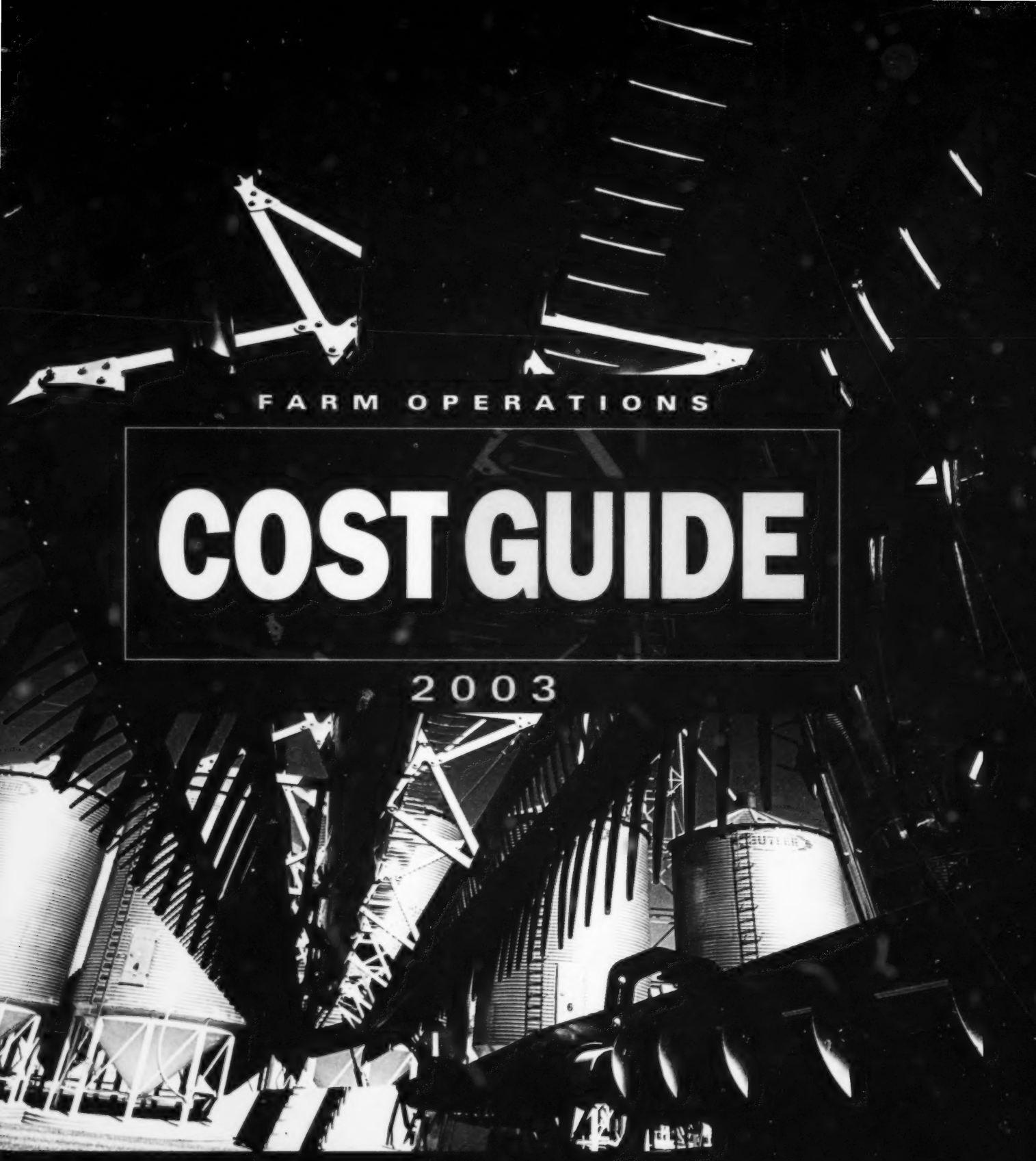
FARM OPERATIONS

COST GUIDE

2003



• Custom Rates Survey Summary • Farm Machinery Cost Guide • Calculating Farm Machinery Costs

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Farm Operations
Cost Guide

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Alberta
AGRICULTURE, FOOD AND
RURAL DEVELOPMENT
Statistics and Data Development Unit
Agricultural Business Management Branch

Published by:

Alberta Agriculture, Food and Rural Development
Information Packaging Centre
7000 – 113 Street, Edmonton, Alberta
Canada T6H 5T6

Production Editor: Chris Kaulbars
Graphic Designer: John Gillmore
Electronic Publishing Operator: Carolyn Boechler

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ISSN 1201-9313

Copies of this publication may be purchased from:

Publications Office
Alberta Agriculture, Food and Rural Development
Phone: 1-800-292-5697 (toll free in Canada)
(780) 427-0391
or
see our website <www.agric.gov.ab.ca> for information on other publications, videos and CD-Roms.

Printed in Canada

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Introduction

Since 1975, the Business Management Innovation Branch of Alberta Agriculture, Food and Rural Development has annually surveyed custom rates, rental rates and the new cost of farm machinery to provide information to farmers and custom operators.

The first part of this publication presents a summary of custom work and rental rates during 2002. These rates are only intended as a guide. **They are not to be interpreted as the rates you must charge or pay.** The surveys were conducted by Maureen Wenger of the Statistics and Data Development Unit from February 2002 through December 2002 and summarized by David Thacker, who is associated with the Business Management Innovation Branch.

The department gratefully acknowledges the contribution of the farmers and custom operators who willingly co-operated by providing information about their custom and rental rates.

Again for 2003, a listing of prices for some common farm inputs is included. These prices are collected throughout the year by Wild Rose Ag Producers (formerly Unifarm) and the Statistics and Data Development Unit of Alberta Agriculture, Food and Rural Development.

Part three of this publication is a farm machinery cost guide, which provides information on the cost of owning and operating farm machinery. Technical information such as current machinery prices, repair rates, performance, capacity, fuel consumption and fuel price are used to calculate fixed and variable costs. The cost calculations are intended to be used as approximate costs based on new machinery prices as of December 2002.

Two years ago, the "Years of Life and Salvage Value" were changed to more accurately indicate what was happening in the marketplace. We feel this adjustment makes our calculation more accurate, but we are still using average numbers, so we recommend that you use your specific information and the worksheets or the online Machinery Cost Calculator wherever possible. This work was done by Brad Smith of the Business Management Innovation Branch in Olds.

If you require further assistance in using this material, contact an Alberta Agriculture, Food and Rural Development Risk Management Specialist. Locations and telephone numbers for Risk Management Specialists are listed on page 30.

Other Information Sources

Farm Machinery Custom and Rental Rate Guide, 1998
Saskatchewan Agriculture and Food

Farm Machinery Rental and Custom Rate Guide, 1998
Manitoba Agriculture Farm Management

The online Machinery Cost Calculator at:
http://www.agric.gov.ab.ca/machcost

Nebraska Tractor Test Laboratory
http://tractortestlab.unl.edu/testreports.htm

IRON solutions
http://www.ironsolutions.com/

Custom Rates Survey Summary

Objective

The specific objective of this survey summary is to organize and report 2002 custom rates for certain custom operations on the farm. No effort is made to evaluate the fairness of reported rates. **The goal is to report what is being charged, not what should be charged.** Because many of the surveys were conducted in 2002, higher costs or other market factors may have resulted in higher custom rates by the time of publication.

Sample size

Sample size is often small, and thus, reported rates should only be used as a general indication of rates being charged for various custom operations in Alberta. **Custom rates in this publication are not to be interpreted as recommended rates.** Rates charged by individual custom operations should still be evaluated on their own merit.

Users of custom rates information

Farmers may find custom rates useful as a guide for machinery management, budgeting and financial planning for credit needs. Also, custom rates can be used as a guide in negotiating settlements for work performed for neighbors or others. Lenders, educators, government institutions and others doing budgeting or planning analysis may also find custom rates helpful in their work. Custom operators can use these guides to compare their own rate with the market rate in a certain area.

Understanding the tables

Custom rates for various operations in Alberta are presented on pages 4 to 14. The tables are itemized under type of:

- operation surveyed
- location where rates apply
- most common rates charged in 2001
- range of rates charged in 2002
- most common rates charged in 2002

Under the heading **Location**, three regions (south, central and north) are identified. When survey reports were insufficient for regional comparisons, the location is identified as Alberta. The map on page 3 outlines the regional boundaries.

Custom rates in 2002 for the various operations are shown as Range 2002 and Most Common 2002. The rates quoted most often by custom operators are under the heading Most Common 2002. Variations in rates from lowest to highest are under the heading Range 2002. Many factors contribute to these ranges, some of which are listed below.

Factors contributing to lower rates:

- neighborly work exchange
- location of job in relation to home base of custom operator
- custom operator's desire to cover variable costs, but not necessarily all fixed costs
- use of older equipment that does not reflect current investment cost and/or has a lower capacity
- services such as labor, meals, fuel, supervision, transportation or other convenience services being provided to the custom operator by the farmer
- the size of the job

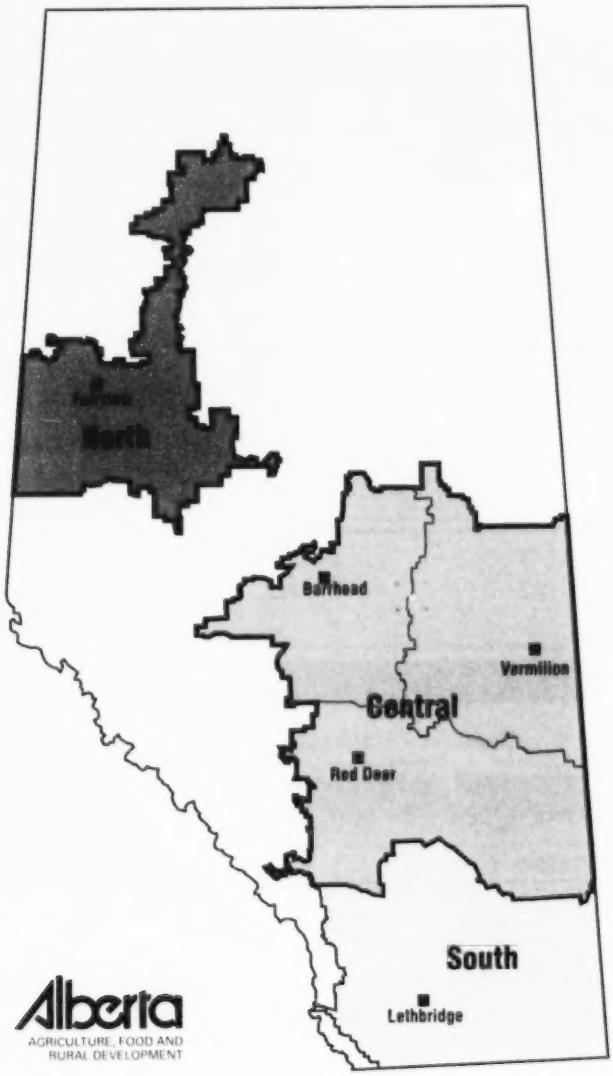
Factors contributing to higher rates:

- full-time custom operators who are covering all costs
- charging what the market will bear
- tough jobs requiring extra power, repairs, fuel or time
- field conditions such as rocks, rough terrain, obstructions or high yield crops
- small size jobs
- higher capacity machines

How to use custom rates information

Rates quoted in this publication for the various custom operations are expressed in numerous ways (per hour, ton, tonne, bale, acres, etc.). Before comparing the various custom operations, always choose the appropriate basis on which to compare. For example, grain harvesting may require a per acre cost as compared to corral cleaning where a per hour rate is more appropriate. When custom rates are given in dollars per hour, it is advisable to convert to a physical unit cost (bushels, tonnes, acres) appropriate to that operation. A low cost per hour can be a very high cost per acre, tonne, etc.

Because custom rates quoted in this publication may not suit all custom operators and those hiring custom work, you should calculate your own custom costs. For more information on how to calculate your own cost, consult the sections on input prices and machinery costs in this book, or use the online **Machinery Cost Calculator at http://www.agric.gov.ab.ca/machcost**



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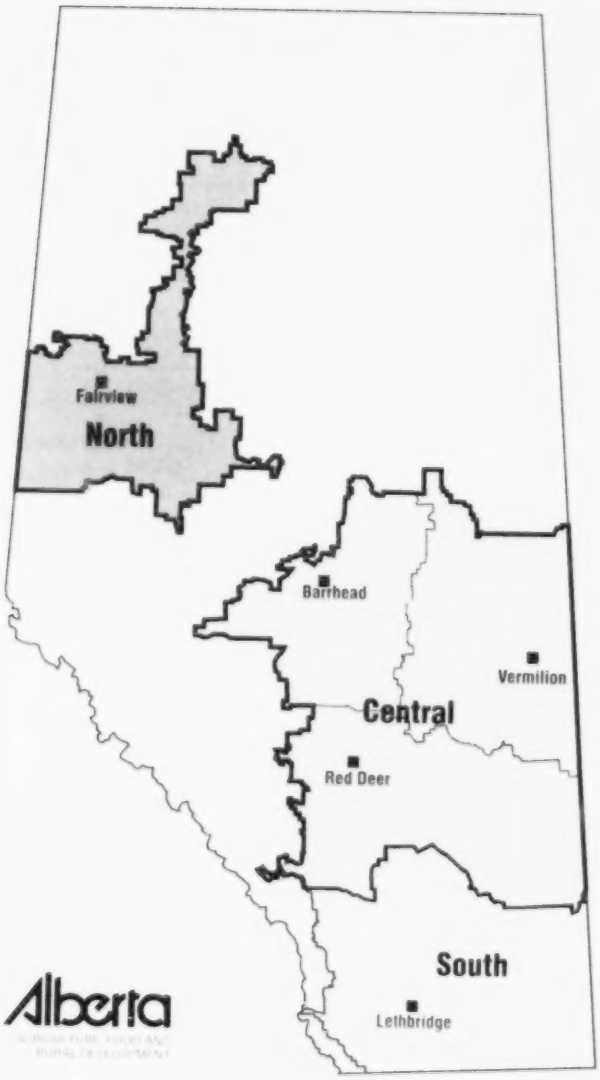

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Tillage

Plowing — crop & stubble	Alberta	$115/hr	—	—
— hay & pasture	Alberta	$30/ac $60-100/hr	$10-30/ac $65-135/hr	$10-30/ac $80-100/hr
Total reports = 10; Surveyed Fall 2002				
Discing — crop & stubble	Alberta	$6-32/ac $100-135/hr	$8-32/ac $75-140/hr	$8-32/ac $100-135/hr
— hay & pasture	Alberta	$10-32/ac $80-125/hr	$10-32/ac $55-140/hr	$10-12/ac $75-135/hr
Total reports = 54; Surveyed Fall 2002				
Rototilling — hay & pasture	Alberta	$125/hr*	$125/hr*	$125/hr*
Total reports = 1; Surveyed Fall 2002		$95-100/ac*	$95-100/ac*	$95-100/ac*
Cultivating	Alberta	$6-8/ac $85-90/hr	$4.75-10/ac $55-140/hr	$6-9/ac $85-90/hr
Total reports = 29; Surveyed Fall 2002				
Harrowing	Alberta	$1.75-3.50/ac	$1.75-3.50/ac	$1.75-3.50/ac
Total reports = 5; Surveyed Fall 2002				
Harrowing & packing	Alberta	$2.25-3.50/ac $105/hr*	$2.25-5.50/ac $100/hr*	$3-3.50/ac $100/hr*
Total reports = 7; Surveyed Fall 2002				

Seeding

Seeding — air seeder/airdrill	South	$10-16/ac	$6.75-25/ac	$10-16/ac
	Central	$10-16.50/ac	$7-15/ac	$10-14/ac
	North	$12/ac*	$8-25/ac*	$10-15/a
Total reports = 80; Surveyed Summer & Fall 2002				
Seeding — press drill/hoe drill	Alberta	$7-10/ac	$7-10/ac	$7-10/ac
Total reports = 2; Surveyed Summer & Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002
Seeding — floater truck	South	$4.50-5.50/ac	$3.75-6/ac	$5.50-5.75/ac
	Central	$4.50-7/ac	$4.50-7/ac	$5-7/ac
	North	$4.50-4.75/ac	$4.50-7.50/ac	$4.75-5.95/ac
Total reports = 133; Surveyed Summer & Fall 2002				
Seeding — aerial	Alberta	$5.50-7/ac	$5.50-7.50/ac	$5.50-7.50/ac
Total reports = 7; Surveyed Summer & Fall 2002				
Seeding — no-till drill	Alberta	$12-16.50/ac	$11-25/ac	$12-17/ac
Total reports = 15; Surveyed Summer & Fall 2002				

Fertilizer Application

Liquid or granular fertilizer application	South	$4.25-5.75/ac	$3-7.50/ac	$4.25-5.50/ac
Floater truck	Central	$4.25-7/ac	$4-7/ac	$4.50-7/ac
	North	$4.25-4.75/ac	$4-8/ac	$4.25-5.25/ac
Total reports = 305; Surveyed Summer & Fall 2002				
Liquid or granular fertilizer application				
Fixed-wing aerial	Alberta	$5-6/ac	$4-6.50/ac	$5-6/ac
Total reports = 14; Surveyed Summer & Fall 2002				
Granular fertilizer application				
Truck mount	Alberta	$4.75-5.75/ac	$4.75/ac*	$4.75/ac*
Total reports = 1; Surveyed Summer & Fall 2002				
Anhydrous fertilizer application	Alberta	$7-10/ac	$7-12/ac	$7-12/ac
Cultivator with cold flow kit		$20-80/T	$30-70/T*	$30-70/T*
Total reports = 7; Surveyed Summer & Fall 2002				

Herbicide Application

Granular herbicide application				
Floater truck	Alberta	$4.50-5.50/ac	$4-7/ac	$4.50-5.50/ac
Total reports = 103; Surveyed Summer & Fall 2002				
Liquid or granular herbicide application				
Truck mount	Alberta	$2.25-6/ac	$2.25-5/ac	$2.25-5/ac
Total reports = 2; Surveyed Summer & Fall 2002				

These are survey results only — not recommended rates.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002
Liquid herbicide application	South	$4-6.50/ac	$4-8/ac	$4.50-6.50/ac
High clearance	Central	$4-6/ac	$4-6.35/ac	$4.50-6/ac
	North	$4-4.50/ac	$3.50-6.25/ac	$4.50-6/ac
Total reports = 254; Surveyed Summer & Fall 2002				
Liquid herbicide application	South	$4.50-7.85/ac	$4-8.25/ac	$4.50-6/ac
Fixed-wing aerial	Central	$4.50-5.50/ac	$4.50-8.25/ac	$4.50-6/ac
	North	$5-6/ac	$5-7/ac	$5.50-6.50/ac
Total reports = 52; Surveyed Summer & Fall 2002				

Grain Harvesting

Swathing	Alberta	$6-11/ac $55-75/hr	$5-15/ac $55-90/hr	$7-10/ac $60-85/hr
Total reports = 68; Surveyed Fall 2002				
Combining — straight cut or pickup header	South – Dryland	$14-16/ac —	$12-20/ac $100/hr*	$15-17/ac $100/hr*
(may be additional cost for fuel)	South – Irrigated	$100-160/hr	$100-160/hr	$100-160/hr
	Central	$16-18/ac $100-160/hr	$15.50-18/ac $200-220/hr	$15.50-18/ac $200-220/hr
	North	— $95-165/hr	$16-21/ac $50-200/hr	$16-21/ac $100-150/hr
Total reports = 48; Surveyed Fall 2002				
Combining and hauling to bin	South – Dryland	$15-20/ac	$15-25/ac	$16-23/ac
	South – Irrigated	$25/ac	$23-30/ac	$23-25/ac
	Central	$18-23/ac $125-200/hr	$18.50-21.50/ac $140-200/hr	$20/ac $140-200/hr
	North	$100-150/hr $16/ac*	$100-200/hr $16-25/ac	$100-170/hr $16-21/ac
Total reports = 64; Surveyed Fall 2002				
Grain drying	Alberta	$45-75/hr $10-12/T $0.15-0.24/bu	$50-75/hr $10-12/T —	$55-65/hr $10-12/T —
Total reports = 7; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Grain Hauling

Less than 20 miles	Alberta	$5-6/T $65/hr* —	$3.25-6/T $49.82-75.20/hr $0.10-0.12/bu*	$4.50-6/T $49.82-75.20/hr $0.10-0.12/bu*
21-50 miles	Alberta	$6-7/T	$5-10/T	$6-8/T
51-100 miles	Alberta	$7.50-10/T $4/lmi*	$7-12.50/T $4/lmi*	$7.50-10/T $4/lmi*
101-200 miles	Alberta	$12-14/T $2.95-4/lmi	$10-19/T $2.95-3.25/lmi	$11.50-15.50/T $2.95-3.25/lmi
Over 200 miles	Alberta	$17.50-22.50/T $3.05-4/lmi	$17.50-35/T $2.95-4/lmi	$17.50-23.50/T $2.95-3.05/lmi
Total Grain Hauling reports = 344; Surveyed Fall 2002				

Haying

Cutting & conditioning hay —	South	$10-12/ac	$10-17/ac	$10-15/ac
Mower conditioner	Central	$9-12/ac $60-100/hr	$9-18/ac $60-115/hr	$11-15/ac $100/hr
	North	$7.50-8.50/ac	$8-14/ac	$10-12/ac
Total reports = 65; Surveyed Fall 2002				
Baling — small square	Alberta	$0.40-0.50/bale	$0.40-1.25/bale	$0.40-0.50/bale
Total reports = 21; Surveyed Fall 2002				
Stacking & hauling small square				
Less than 1 mile	Alberta	$0.40-0.45/bale	$0.35-0.60/bale	$0.40-0.50/bale
Total reports = 17; Surveyed Fall 2002				
Baling, stacking & hauling small square				
Less than 1 mile	Alberta	$0.80-1/bale	$0.80-1.10/bale	$0.84-1/bale
Total reports = 12; Surveyed Fall 2002				
Cutting, baling, stacking & hauling small square				
Less than 1 mile	Alberta	$1.35-1.40/bale*	—	—
Total reports = 0; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received

Operation	Location	Most Common 2001	Range 2002	Most Common 2002
Baling — medium square	Alberta	—	$6-7/bale*	$6-7/bale*
— large square		$8-12/bale	$8.50-12/bale	$11-12/bale
Total reports = 12; Surveyed Fall 2002				
Baling — small round	Alberta	—	—	—
— medium round		$5.50-7/bale	$7-7.50/bale	$7-7.50/bale
Total reports = 3; Surveyed Fall 2002				
Baling — large round	South	$7.50-8/bale	$6.50-11.50/bale	$7.50-8/bale
	Central	$7-8/bale	$5-20/bale	$7-9/bale
	North	$7-8/bale	$6-15/bale	$7-8/bale
Total reports = 86; Surveyed Fall 2002				
Stacking & hauling large round				
Less than 5 miles	Alberta	$2-2.50/bale	$1.75-3.50/bale	$2-2.75/bale
Total reports = 28; Surveyed Fall 2002				
Baling, stacking & hauling large round				
Less than 5 miles	Alberta	$8.25-13.50/bale	$8.75-11/bale	$8.75-11/bale
Total reports = 4; Surveyed Fall 2002				
Bale wrapping — large round				
Plastic wrap included	Alberta	—	$6-7.35/bale	$6-7.35/bale
Total reports = 2; Surveyed Fall 2002				
Hay hauling — large round				
Up to 18 bales/load	0-50 miles	$10/T*	$5-10/T	$5-10/T
		$13/ton*	$1.90-5.27/bale	$2.25-4.50/bale
		$60-75/hr	$60-65/hr	$60-65/hr
Total reports = 43; Surveyed Fall 2002				
Hay hauling — large round				
30 or more bales/load	0-10 miles	$5-7/bale	$2-10/bale	$5-7/bale
		$70-100/hr	$75-100/hr	$75-100/hr
		—	$3.50-3.85/lmi	$3.75/lmi
	11-25 miles	$5-7/bale	$3.50-7/bale	$3.50-7/bale
		$100/hr*	$75-100/hr	$75-100/hr
		—	$3.50-3.75/lmi	$3.75/lmi
	26-60 miles	$20/T*	$15-20/T	$15-20/T
		$2.60-3.70/lmi	$2.60-3.75/lmi	$3.75/lmi
		—	$3.75-10/bale	$3.75-10/bale
	Over 60 miles	$2.60-3.85/lmi	$2.60-4/lmi	$3.45-3.85/lmi
Total reports = 99; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Silage

Cutting silage — swathing	Alberta	$70-85/hr	$55-90/hr	$70-85/hr
4-12 ac/hr		$10-12/ac	$5.50-16/ac	$10/ac
		$1/Tonne	$1/Ton*	$1/Ton*
Total reports = 52; Surveyed Fall 2002				
Chopping silage	Alberta	$200-275/hr	$110-350/hr	$200-325/hr
20-75 Tons/hr		$5.50/Ton	$4.50-5/Ton	$4.50-5/Ton
		$23.50-40/load	$23.50-40/load	$23.50-40/load
		$4.75-6/Tonne	$3.50-4.75/Tonne	$3.50-4.75/Tonne
Total reports = 48; Surveyed Fall 2002				
Hauling silage	Alberta	$50-75/hr	$37.50-90/hr	$50-75/hr
Truck and operator, 1-5 mile haul		$2.50/Ton	$1/Tonne*	$1/Tonne*
Total reports = 52; Surveyed Fall 2002				
Packing silage	Alberta	$55-85/hr	$55-85/hr	$85/hr
Tractor with dozer, loader or packer		$1-1.50/Tonne	$1-1.10/Tonne	$1-1.10/Tonne
25-60 Tons/hr		$1.25/Ton*	$1.25/Ton*	$1.25/Ton*
Total reports = 26; Surveyed Fall 2002				
Chopping & hauling silage	Alberta	$190-460/hr	$120-450/hr	$325-350/hr
1-5 mile haul		$8/Ton*	$4.30-6/Ton	$5-6/Ton
		$5-8.75/Tonne	$30-70/load	$30-70/load
Total reports = 53; Surveyed Fall 2002				
Swathing, chopping & hauling silage	Alberta	$8.50/Tonne*	$8.50-9.37/Tonne	$8.50-9.37/Tonne
		—	$180/hr*	$180/hr*
Total reports = 3; Surveyed Fall 2002				
Swathing, chopping, hauling & packing	Alberta	$9/Ton*	$9/Ton*	$9/Ton*
		$7.50-9.60/Tonne	$7.50-9.60/Tonne	$7.50-9.60/Tonne
Total reports = 17; Surveyed Fall 2002				
Silage bagging	Alberta			
Includes bag (customer provides tractor)	Bag size 10x150	$1575/bag*	$1425-1575/bag	$1425-1575/bag
	Bag size 10x200	$2000/bag*	$1900-2000/bag	$1900-2000/bag
	Bag size 10x250	$2450/bag*	$2375-2450/bag	$2375-2450/bag
Total reports = 6; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.
NOTE: Ton is an imperial ton. Tonne is a metric tonne.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002
Silage chopping, hauling & bagging				
Includes bag (customer may need to provide tractor)				
1-3 mile haul	Alberta			
	Bag size 10x150	$3100-3150/bag	$2800-3150/bag	$2800-3150/bag
	Bag size 10x200	$3650-3950/bag	$3600-4000/bag	$3600-4000/bag
	Bag size 10x250	$4100-5700/bag	$4200-4900/bag	$4200-4900/bag
Total reports = 12; Surveyed Fall 2002				

Land Clearing & Breaking

Brushing & piling or repiling (with a dozer blade)	Alberta			
	D6 (140-180hp)	$65-85/hr	$80-110/hr	$100/hr
	D7 (180-200hp)	$95-110/hr	$80-115/hr	$100-110/hr
	D8 (225-335hp)	$130-140/hr	$130-140/hr	$130-140/hr
Total reports = 68; Surveyed Fall 2002				
Ripping or sub-soiling	Alberta	$125-155/hr	$125-160/hr	$125-160/hr
Total reports = 11; Surveyed Fall 2002				
Discing	Alberta	$80-135/hr	$65-165/hr	$80-135/hr
Higher rates for remote locations or tough terrain		$32/ac*	$12-60/ac	$12-60/ac
Total reports = 33; Surveyed Fall 2002				
Plowing	Alberta	$75-120/hr	$80-135/hr	$90-120/hr
		$55/ac*	$55-65/ac	$55-65/ac
Total reports = 15; Surveyed Fall 2002				
Rototilling	Alberta	$70-125/hr	$70-250/hr	$70-250/hr
		$95-100/ac*	$95-100/ac*	$95-100/ac*
Total reports = 3; Surveyed Fall 2002				
Dugout construction, drainage, land leveling	Alberta			
	D6 Cat	$85-100/hr	$80-100/hr	$100/hr
	D7 Cat	$100-115/hr	$85-120/hr	$100-120/hr
	D8 Cat	$130-140/hr	$130-140/hr	$130-140/hr
	Excavators, scrapers and others	$70-150/hr	$65-150/hr	$70-150/hr
Total reports = 127; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Machinery Rental

Anhydrous ammonia applicator — pull type (rental cost with product purchase)	Alberta	$1.25-3/ac $10-30/T	N/C-3/ac $10-80/T	$1-3/ac $20-40/T
Total reports = 73; Surveyed Summer & Fall 2002				
Liquid fertilizer applicator — pull type (rental cost with product purchase)	Alberta	$0.50-2/ac $100/day*	$0.50-5/ac $250/setup*	$0.50-5/ac $250/setup*
Total reports = 13; Surveyed Summer & Fall 2002				
Granular fertilizer applicator — pull type (rental cost with product purchase)	South	$1-2.50/ac $7-10/T	N/C-4/ac $5-12/T	$0.50-1/ac $7-10/T
	Central	$1-2/ac $5-10/T $50-100/day	$1-2/ac $5-12/T $50/day*	$1-2/ac $8-10/T $50/day*
	North	N/C-75/day	N/C-1.50/ac $5-10/T $75-100/day	N/C-1.50/ac $5-10/T 75-100/day
Total reports = 139; Surveyed Summer & Fall 2002				
Granular herbicide applicator — pull type (rental cost with product purchase)	Alberta	$0.75-2.50/ac $100-300/day	N/C-3/ac $50-100/day	$1-2.50/ac $50-100/day
Total reports = 58; Surveyed Summer & Fall 2002				

Soil Testing

Soil testing (lab fees included)	Alberta			
	Four nutrients	$30-75/field	$24-80/field	$30-75/field
	GPS referenced	—	$50-80/field	$50-80/field
	With micronutrients	$45-85/field	$39-100/field	$50-70/field
	GPS referenced	—	$55-84/field	$60-80/field
(lab fees not included)		$15-30/field	$5-65/field	$25-30/field
Total reports = 267; Surveyed Summer & Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Grain Processing

Grinding (mixing cost included)	Alberta	$15-20/T	$13.20-23/T	$15-20/T
Total reports = 10; Surveyed Fall 2002				
Dry rolling (mixing cost included)	Alberta	$15-20/T	$13-20/T	$15-20/T
Total reports = 12; Surveyed Fall 2002				
Steam rolling (mixing cost included)	Alberta	$22-33/T	$22-33/T	$22-33/T
Total reports = 5; Surveyed Fall 2002				
Pelleting (mixing cost included)	Alberta	$19-20/T	$19-20/T	$19-20/T
Total reports = 3; Surveyed Fall 2002				
Processed grain delivery	Alberta	$7-12/T	$7-12/T	$7-12/T
7-13 tonne load		$35-90/load	$35-90/load	$35-90/load
0-35 miles		$55/hr*	$55/hr*	$55/hr*
Total reports = 9; Surveyed Fall 2002				

Livestock Hauling

Possum belly liner	Alberta			
(50,000-65,000 lb)	0-20 miles	$160-225/load	$130-250/load	$140-200/load
lmi=loaded mile		$70-100/hr	$70-100/hr	$70-100/hr
	21-50 miles	$225-275/load	$180-330/load	$205-285/load
		$100/hr*	$3-3.50/lmi	$3-3.50/lmi
	51-100 miles	$325-450/load	$250-475/load	$275-400/load
		$3-4/lmi	$4/lmi	$4/lmi
	100+ miles	$3.25-3.75/lmi	$2.80-4/lmi	$3.25-4/lmi
		$420-650/load	$365-800/load	$400-640/load
		$1.50-1.80/cwt	$1.50-1.80/cwt	$1.50-1.80/cwt
Total reports = 541; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received

Operation	Location	Most Common 2001	Range 2002	Most Common 2002
Straight liner, body job and gooseneck	Alberta			
(16,000-42,000 lb)		$150/load	$90-300/load	$90-300/load
lmi=loaded mile		$2.60-3.25/lmi	$2.60-3.25/lmi	$2.65-2.70/lmi
lkm=loaded kilometre		$1.60-1.75/cwt	$1.60/cwt*	$1.60/cwt*
		$1.60/lkm*	$1.60/lkm*	$1.60/lkm*
Total reports = 25; Surveyed Fall 2002				
Hog hauling	Alberta			
lkm=loaded kilometre		$5/head*	—	—
		$1.60/lkm*	$1.60/lkm*	$1.60/lkm*
Total reports = 1; Surveyed Fall 2002				

Livestock Feeding

Overwintering cows (calving extra)	Alberta			
customer supplies feed		$0.60-1.35/hd/day	$0.60-1.35/hd/day	$0.60-1.35/hd/day
feed included		$1.80-2.60/hd/day	$1.80-2.60/hd/day	$1.80-2.60/hd/day
Total reports = 7; Surveyed Spring 2002				

Corral Cleaning

Corral cleaning	Alberta			
Loader, 4 spreaders, 5 operators		$325-350/hr	$310-395/hr	$325-355/hr
Loader, 3 spreaders, 4 operators		$220-285/hr	$200-310/hr	$220-285/hr
Loader, 2 spreaders, 3 operators		$150-200/hr	$150-235/hr	$150-200/hr
Loader, 1 spreader, 2 operators		$115-165/hr	$120-165/hr	$120-165/hr
Loader only, 1 operator, for stockpiling		$65-90/hr	$50-150/hr	$65-90/hr
Total reports = 302; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.

Operation	Location	Most Common 2001	Range 2002	Most Common 2002

Fencing

Barbed wire fence construction	Alberta	$1200-2000/mi	$1300-2000/mi	1400-2000/mi
Labour & equipment		$60-90/hr	$55-125/hr	$60-80/hr
		$4/m*	$4.25/m*	$4.25/m*
		$2000-2500/km*	—	—
Total reports = 74; Surveyed Fall 2002				
Page wire fence construction	Alberta	—	$55-80/hr	$55-80/hr
Labour & equipment		—	$6.35/m*	$6.35/m*
Total reports = 24; Surveyed Fall 2002				
Post pounding				
Labour & equipment	Alberta	$60-80/hr	$35-80/hr	$60-80/hr
Total reports = 36; Surveyed Fall 2002				
Barbed wire fence removal	Alberta	$600-800/mi	$600-800/mi	$600-800/mi
Labour & equipment		$60-80/hr	$35-80/hr	$60-80/hr
		$1/m	$1-1.50/m	$1-1.50/m
Total reports = 45; Surveyed Fall 2002				

These are survey results only — not recommended rates.
NOTE: * Indicates one report received.

Land Leasing Summary 2002

Cash rent – cropland	Location	Average 2000	Range 2001	Most Common 2001	Average 2001
	South – Irrigated	$65.80/ac	$15-175/ac	$50-100/ac	$59.46/ac
	South – Dryland	$30.56/ac	$13.53-50/ac	$25-45/ac	$32.10/ac
	Central	$28.87/ac	$1-66/ac	$20-60/ac	$30.56/ac
	North	$17.11/ac	$7.50-60/ac	$20-40/ac	$29.07/ac

Total reports = 281; Surveyed Spring 2002

Length of Lease – cropland	Cash Rent		Crop Share	
Years	Number of leases	%	Number of leases	%
1	73	26	24	44
2	23	8	0	0
3	31	11	9	16
4	5	2	0	0
5	122	43	5	9
6+	27	10	17	31
Total	281	100	55	100

Total reports = 336; Surveyed Spring 2002

Type of Lease – cropland	Cash Rent		Crop Share	
Location	Number of leases	%	Number of leases	%
South	44	81	10	19
Central	66	76	21	24
North	171	88	24	12

Total reports = 336; Surveyed Spring 2002

These are survey results only — not recommended rates.
NOTE: * Indicates one report received

Land Leasing Summary 2002

Cash rent – cropland	Location	Average 2000	Range 2001	Most Common 2001	Average 2001
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	Central	$28.87/ac	$1-66/ac	$20-60/ac	$30.56/ac
	North	$17.11/ac	$7.50-60/ac	$20-40/ac	$29.07/ac

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Location	Number of leases	%	Number of leases	%
South	44	81	10	19
Central	66	76	21	24
North	171	88	24	12

Total reports = 336; Surveyed Spring 2002

These are survey results only – not recommended rates.
NOTE: * indicates one report received.

Cropshare rental – cropland		Landlord:Tenant	No. of leases	% reporting	Notes
Alberta	South	1/5:4/5	0	0	Tenant pays all but
		2/5:3/5	1	14	taxes in 7 of 10 agreements
		1/4:3/4	0	0	
		1/3:2/3	6	86	
	Central	1/5:4/5	0	0	Tenant pays all but
		1/4:3/4	5	24	taxes in 11 of 21 agreements
		1/3:2/3	12	57	
		1/2:1/2	4	19	
	North	1/5:4/5	4	17	Tenant pays all but
		1/4:3/4	7	29	taxes in 17 of 24 agreements
		1/3:2/3	11	46	
		1/2:1/2	2	8	

Total reports = 55; Surveyed Spring 2002

Cash rent – private pasture	Location	Most Common 2001	Range 2002	Most Common 2002
	South	$7.50-22.25/AUM	$1.39-24/AUM	$7.50-21/AUM
		$20/hd/mo*	$18/hd/mo*	$18/hd/mo*
		$25-28/ac	$28/ac*	$28/ac*
	Central	$15-25/AUM	$2.32-25/AUM	$14-24/AUM
		$7-18/hd/mo	$15/hd/mo*	$15/hd/mo*
		$25/ac	$7-45/ac	$10-30/ac
	North	—	$2.32-21/AUM	—
		—	$10-30/ac	$15-20/ac

Total reports = 123; Surveyed Spring 2002

Crown land	Location	Total Acreage	Rate/AUM 2001	Rate/AUM 2002
	South	3,100,000	2.79	2.79
	Central	800,000	2.32	2.32
	North	1,700,000	1.39	1.39

Surveyed Spring 2002

These are survey results only — not recommended rates.
NOTE: * indicates one report received

Alberta Average Farm Input Prices

Agricultural Input Prices

The following average prices are based on prices quoted the first week of each month at 18 centres across Alberta. These prices are intended as a guide only. Actual current prices may differ.

Items	Average 2000	Average 2001 (revised)	Average 2002
Building Supplies			
Constr. grade lumber 2x6 spruce, M	$ 570.01	$ 542.54	$ 579.14
Rough grade lumber 2x8 spruce, M		$ 559.53	$ 548.05
Sheathing, ply., spruce, 3/8", 4'x8' sht	$ 16.46	$ 14.92	$ 15.78
Ready-mix concrete, 20 mpa, cubic metre		$ 127.41	$ 129.83
Fence posts, std. gr., treated, 3-4" diam., 7' length, ea.		$ 3.14	$ 3.13
Nails, std. grd., 4" spiral, 50 lb box		$ 42.50	$ 45.28
Pipe, plastic, 3/4", 75 psi., 100' coil	$ 24.19	$ 25.11	$ 26.30
Rods, re-enforcing 1/2", 6 metres	$ 3.93	$ 3.88	$ 3.80
Barbed wire, 12 gauge, double strand	$ 43.18	$ 43.49	$ 45.24
Machinery Repairs			
Truck tires, 1st line, P235-85R-16, each, env. Tax incl.	$ 123.54 *	$ 138.05	$ 155.76
Battery, 525 cranking amp, each	$ 77.63	$ 78.71	$ 80.03
V-belt, 1/2" x 70", ea.	$ 9.79	$ 10.01	$ 11.05
Antifreeze, 4 litres	$ 9.46	$ 9.51	$ 9.91
Mech. repairs, per hour	$ 56.55	$ 59.94	$ 62.18

Source: Alberta Agriculture, Food and Rural Development, Statistics and Data Development Unit

* Specifications changed in 2001; year 2000 prices are based on old specifications.

Items	Average 2000	Average 2001 (revised)	Average 2002

Crop Supplies

Baler twine, plastic, 28000' bale	$ 35.48 *	$ 28.15	$ 28.04
Fertilizer, 46-0-0, tonne, bulk	$ 291.61	$ 390.20	$ 334.61
Fertilizer, 11-51-0, tonne, bulk	$ 393.89	$ 402.29	$ 400.26
Fertilizer, 82-0-0, tonne, bulk (applicator inc.)	$ 467.53	$ 629.94	$ 527.84
Refine extra, granular, 320 gram		$ 213.85	$ 215.12
Assert 300 SC, liquid, 10.8 litre		$ 243.89	$ 242.64
Roundup transorb, liquid, 10 litre		$ 92.23	$ 91.47
Seed; wheat, #1, 100 kg., bulk	$ 28.06	$ 28.09	$ 28.93
Seed; barley, #1, 100 kg., bulk	$ 26.75	$ 26.86	$ 28.74
Seed; conventional canola, #1, treated, 100 kg., bagged	$ 390.86	$ 449.30	$ 552.19
Seed; herb. tolerant canola, #1, treated, 100 kg., bagged		$ 750.15	$ 795.03

Feeds

Calf starter supp., 20-24%, tonne (bulk)	$ 9.79 *	$ 380.74	$ 394.66
Dairy supp., 32%, tonne (bulk)	$ 11.00 *	$ 424.15	$ 437.88
Feedlot supp., pellets, 32%, excl. Ionophore, tonne (bulk)		$ 285.80	$ 294.16
Hog grower ration, 15%, tonne (bulk)	$ 12.37 *	$ 273.42	$ 278.64
Dual purp. swine supp., 40%, tonne (bulk)		$ 476.70	$ 479.25
Broiler grower complete feed, 18-20%, tonne (bulk)	$ 9.65 *	$ 332.05	$ 318.45
Cattle mineral, 25 kg.	$ 19.82	$ 20.29	$ 20.94
Feed barley, no. 1, (farm gate), bu	$ 2.02	$ 2.54	$ 3.28
Feed wheat, no. 1, (farm gate), bu	$ 2.68	$ 3.01	$ 4.02
Hay, good quality baled, ton	$ 75.74	$ 91.89	$ 123.27

Source: Alberta Agriculture, Food and Rural Development, Statistics and Data Development Unit

* Specifications changed in 2001, year 2000 prices are based on old specifications

Items	Average 2000	Average 2001 (revised)	Average 2002
Livestock Supplies			
Penicillin, injectable, 300 mg/ml, 250 ml	$ 7.51 *	$ 14.43	$ 15.10
Vitamin A D E., injectable, 250 ml	$ 10.22 *	$ 24.50	$ 25.00
Fuel and Oil			
Purple gas, 100 litres (minus prov. rebate only)	$ 52.63	$ 53.96	$ 51.90
Diesel fuel, 100 litres (minus prov. rebate only)	$ 40.11	$ 40.82	$ 36.23
Propane, bulk, 100 litres	$ 32.30	$ 39.71	$ 30.71
Natural gas, GJ (excluding svc. or del. charge)	$ 4.54	$ 7.35	$ 4.48
Electricity, farm use, 100 kwh (excl. svc. or del. charge)		$ 10.98	$ 6.58
Oil, for diesel engines, 5 litres	$ 9.90	$ 10.63	$ 11.08
Other			
Farm labour, per month, without board	$ 1,829.85	$ 1,894.41	$ 1,966.43
Tractor 100-110 HP, diesel, fwd	$ 83,195.13 *	$ 87,899.49	$ 94,001.92
Tractor 300-325 HP, diesel, 4wd	$153,865.13 *	$193,278.61	$201,016.26
Combine, SP, diesel, 250-300 HP, 210-240 bu hopper	$222,402.01 *	$252,504.63	$251,170.74
Air drill, 40-42', w/ packer wheels, 325 bu tank		$125,335.07	$125,131.54
Sprayer, pt, 800-900 gal. Tank, 90-100' boom		$ 32,335.02	$ 32,577.38
Round baler, pull type	$ 34,597.52	$ 38,158.62	$ 38,607.22
Double disc, hvy duty 19'-21'	$ 27,215.28	$ 28,980.15	$ 31,291.55
Truck, 3/4 ton 4x4, 4 spd. Auto., 302/305 V8	$ 24,154.03 *	$ 32,261.17	$ 32,898.14
Grain bin, hopper btm., 3500 bu		$ 8,096.60	$ 8,514.58

Source: Alberta Agriculture, Food and Rural Development, Statistics and Data Development Unit

* Specifications changed in 2001; year 2000 prices are based on old specifications.

Farm Machinery Costs

How to Use the Farm Machinery Cost Guide

- If you are a **full-time custom operator**, then use the Total Machine Cost + Labor + Profit for estimating a charge. Be sure to adjust fixed costs if your annual hours of use differ much from those quoted.
  Note: Labor and profit margin are not included in the tables on pages 21 through 29.
- If you are doing custom work on a **good neighbor payment basis**, then it may not be necessary to recover all the fixed costs of owning the machine since these costs represent an annual cost incurred whether or not custom work is done. However, the rate should cover all variable costs that include an allowance for repairs. Labor and profit margin can be adjusted to meet each situation.
- If you plan to do custom work in addition to your own work, so as to partly justify the ownership of a larger machine, then the custom charge should cover variable costs, labor, a profit margin **plus** a proportion of fixed costs calculated as follows:

$$\text{Proportion of Fixed Costs} = \text{Hours of Custom Work} \times \left[\frac{\text{Total fixed costs}}{\text{Total annual hours of use}}\right]$$

- If you are renting out machinery, then you will wish to cover fixed costs at least and those variable costs such as lubrication and repairs that may not be already covered by the renter.
- If you wish to assess a rate for a full operation such as silage making, which requires several machines, then add the hourly costs of each activity, making sure there is neither omission nor duplication. Use the worksheets provided in this book. The purchase cost estimates are based on average cash prices as of December 2002 for each class of machine. These estimates represent current replacement costs that should be budgeted and charged for, even if you do custom work with older machines, unless the older machine will not do a comparable job.

Key assumptions

Estimated years of life, annual hours of use and annual repair rates are specified for each type of machine. The salvage value of each machine is listed as a per cent of the new price.

Diesel fuel is charged at $0.4669 per litre and propane at $0.294 per litre. Fuel costs vary throughout the year with supply and demand.

Return on investment is calculated using a Bank of Canada 60-day T-bill rate of 2.77 per cent with an additional allowance for risk of 6 per cent. Inflation was included at a 2.0 per cent rate. Income tax considerations have not been included in the calculations.

Other considerations

- Favorable or unfavorable working conditions, such as size of job, distance, access, topography, soil type and possible downtime, may modify the guide figures. Per hour charges allow for some of these situations.
- Different soils and topography may require power units of a different size than those shown here.
- Charges per unit of output such as per acre, per bushel or per bale defined on work rates per hour may be quite different from those quoted. Per hour charging overcomes some of these uncertainties.
- You can adjust the labor charge according to your actual cost of hired work or the opportunity cost of your own labor.
- If your experience and farm records suggest that other costs and assumptions would suit your situation, then recalculate using the worksheets in this book, or use the online **Machinery Cost Calculator at http://www.agric.gov.ab.ca/machcost**
- Earlier and faster may be cheaper. There are costs attached to late completion of operations. The rewards for timely, quality work quickly completed by large machines are only earned if the support system, including seed and fertilizer supplies as well as grain trucking, is well organized.

Years life = 10
Annual use (Hrs) = 200, 400*, 600
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Tractor - Front Wheel Assist

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted)** ($/hr)	Total Machine Cost ($/hr)
	200			19.31		26.16
40 HP without cab	400	8	34,120	9.65	6.85	16.51
	600			6.44		13.29
	200			26.10		36.54
60 HP without cab	400	13	46,120	13.05	10.44	23.49
	600			8.70		19.14
	200			40.15		54.60
80 HP	400	17	70,940	20.07	14.45	34.52
	600			13.38		27.83
	200			53.61		72.53
100 HP	400	22	94,730	26.81	18.92	45.72
	600			17.87		36.79
	200			64.49		88.07
120 HP	400	28	113,950	32.24	23.58	55.82
	600			21.50		45.08
	200			79.29		106.98
150 HP	400	32	140,110	39.65	27.69	67.34
	600			26.43		54.12
	200			93.63		126.98
180 HP	400	39	165,450	46.82	33.35	80.17
	600			31.21		64.56
	200			110.20		147.36
215 HP	400	42	194,730	55.10	37.16	92.26
	600			36.73		73.89

* This *Annual Hours Used* figure is typical.
** FWA
MFWD approx. 10,000 under 100 HP
approx. 15,000 over 100 HP

Years life = 10
Annual use (Hrs) = 200, 400*, 600
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Tractor - Front Wheel Assist

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted)** ($/hr)	Total Machine Cost ($/hr)
	200			19.31		26.16
40 HP without cab	400	8	34,120	9.65	6.85	16.51
	600			6.44		13.29
	200			26.10		36.54
60 HP without cab	400	13	46,120	13.05	10.44	23.49
	600			8.70		19.14
	200			40.15		54.60
80 HP	400	17	70,940	20.07	14.45	34.52
	600			13.38		27.83
	200			53.61		72.53
100 HP	400	22	94,730	26.81	18.92	45.72
	600			17.87		36.79
	200			64.49		88.07
120 HP	400	28	113,950	32.24	23.58	55.82
	600			21.50		45.08
	200			79.29		106.98
150 HP	400	32	140,110	39.65	27.69	67.34
	600			26.43		54.12
	200			93.63		126.98
180 HP	400	39	165,450	46.82	33.35	80.17
	600			31.21		64.56
	200			110.20		147.36
215 HP	400	42	194,730	55.10	37.16	92.26
	600			36.73		73.89

* This *Annual Hours of Use* figure is typical.
EWA
MEWD approx. 10,000 under 100 HP
approx. 15,000 over 100 HP

Years life = 12
Annual use (Hrs) = 200, 400*, 600
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Tractor - 4WD

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted)** ($/hr)	Total Machine Cost ($/hr)
	200			62.25		86.72
110 HP Bi-directional	400	29	118,650	31.12	24.47	55.59
	600			20.75		45.22
	200			96.96		140.89
275 HP	400	56	184,810	48.48	43.93	92.41
	600			32.32		76.25
	200			114.29		162.30
300 HP	400	59	217,840	57.14	48.02	105.16
	600			38.10		86.11
	200			121.09		174.38
350 HP	400	67	230,820	60.55	53.29	113.83
	600			40.36		93.65
	200			127.60		188.25
425 HP	400	79	243,210	63.80	60.66	124.46
	600			42.53		103.19

* This *Annual Hours Used* figure is typical.
** Priced without PTO.

Tillage/Seeding/Spraying Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Plows	Life = 15	Annual hours use = 150	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
3 X 16" 3-point	60	7,220	13.05	10.44	5.45	2.89	**31.83**	1.70	**18.75**
5 X 16" Semi 3-point	150	19,220	39.65	27.69	14.50	7.69	**89.53**	2.83	**31.64**
6 X 18" Trailing	180	25,000	46.82	33.35	18.87	10.00	**109.03**	3.82	**28.56**
8 X 16" Trailing	180	29,470	46.82	33.35	22.24	11.79	**114.19**	4.53	**25.23**
10 X 18" Trailing	275	38,970	48.48	43.93	29.41	15.59	**137.40**	6.36	**21.59**
Hd cultivators	Life = 15	Annual hours use = 250	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
14' Single	80	9,725	20.07	14.45	4.40	2.33	**41.26**	5.94	**6.95**
22' Wing	150	25,670	39.65	27.69	11.62	6.16	**85.12**	9.33	**9.12**
31' Wing	180	34,025	46.82	33.35	15.41	8.17	**103.74**	13.15	**7.89**
42' Wing	275	45,240	48.48	43.93	20.48	10.86	**123.75**	17.82	**6.95**
60' Wing	350	62,625	60.55	53.29	28.36	15.03	**157.22**	25.45	**6.18**
Field cultivators	Life = 15	Annual hours use = 250	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
24' Wing	100	15,600	26.81	18.92	7.06	3.74	**56.53**	10.18	**5.55**
32' Wing	150	22,100	39.65	27.69	10.01	5.30	**82.65**	13.58	**6.09**
42' Wing	180	31,500	46.82	33.35	14.26	7.56	**101.99**	17.82	**5.72**
Discs - tandem HD	Life = 15	Annual hours use = 150	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
16' Single	120	14,750	32.24	23.58	11.13	5.90	**72.86**	6.79	**10.73**
24' Wing	180	32,450	46.82	33.35	24.49	12.98	**117.63**	10.18	**11.55**
30' Wing	215	35,970	55.10	37.16	27.15	14.39	**133.79**	12.73	**10.51**
12' Heavy offset	150	19,770	39.65	27.69	14.92	7.91	**90.16**	5.09	**17.71**
16' Heavy offset	180	24,100	46.82	33.35	18.19	9.64	**107.99**	6.79	**15.91**
Rototillers	Life = 15	Annual hours use = 100	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
5' Rotor	80	3,115	20.07	14.45	3.58	1.87	**39.92**	1.27	**31.36**
6' Rotor	100	3,700	26.81	18.92	4.19	2.22	**52.13**	1.53	**34.13**
8' Rotor	120	6,460	32.24	23.58	7.31	3.88	**67.01**	2.04	**32.91**

400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Years life = 12
Annual use (Hrs) = 200, 400*, 600
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Tractor - 4WD

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted)** ($/hr)	Total Machine Cost ($/hr)
	200			62.25		86.72
110 HP Bi-directional	400	29	118,650	31.12	24.47	55.59
	600			20.75		45.22
	200			96.96		140.89
275 HP	400	56	184,810	48.48	43.93	92.41
	600			32.32		76.25
	200			114.29		162.30
300 HP	400	59	217,840	57.14	48.02	105.16
	600			38.10		86.11
	200			121.09		174.38
350 HP	400	67	230,820	60.55	53.29	113.83
	600			40.36		93.65
	200			127.60		188.25
425 HP	400	79	243,210	63.80	60.66	124.46
	600			42.53		103.19

* This [illegible] figure is typical.
** Priced without PTO.

Tillage/Seeding/Spraying Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Plows	Life = 15	Annual hours use = 150	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
3 X 16" 3-point	60	7,220	13.05	10.44	5.45	2.89	**31.83**	1.70	**18.75**
5 X 16" Semi 3-point	150	19,220	39.65	27.69	14.50	7.69	**89.53**	2.83	**31.64**
6 X 18" Trailing	180	25,000	46.82	33.35	18.87	10.00	**109.03**	3.82	**28.56**
8 X 16" Trailing	180	29,470	46.82	33.35	22.24	11.79	**114.19**	4.53	**25.23**
10 X 18" Trailing	275	38,970	48.48	43.93	29.41	15.59	**137.40**	6.36	**21.59**
Hd cultivators	Life = 15	Annual hours use = 250	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
14' Single	80	9,725	20.07	14.45	4.40	2.33	**41.26**	5.94	**6.95**
22' Wing	150	25,670	39.65	27.69	11.62	6.16	**85.12**	9.33	**9.12**
31' Wing	180	34,025	46.82	33.35	15.41	8.17	**103.74**	13.15	**7.89**
42' Wing	275	45,240	48.48	43.93	20.48	10.86	**123.75**	17.82	**6.95**
60' Wing	350	62,625	60.55	53.29	28.36	15.03	**157.22**	25.45	**6.18**
Field cultivators	Life = 15	Annual hours use = 250	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
24' Wing	100	15,600	26.81	18.92	7.06	3.74	**56.53**	10.18	**5.55**
32' Wing	150	22,100	39.65	27.69	10.01	5.30	**82.65**	13.58	**6.09**
42' Wing	180	31,500	46.82	33.35	14.26	7.56	**101.99**	17.82	**5.72**
Discs - tandem HD	Life = 15	Annual hours use = 150	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
16' Single	120	14,750	32.24	23.58	11.13	5.90	**72.86**	6.79	**10.73**
24' Wing	180	32,450	46.82	33.35	24.49	12.98	**117.63**	10.18	**11.55**
30' Wing	215	35,970	55.10	37.16	27.15	14.39	**133.79**	12.73	**10.51**
12' Heavy offset	150	19,770	39.65	27.69	14.92	7.91	**90.16**	5.09	**17.71**
16' Heavy offset	180	24,100	46.82	33.35	18.19	9.64	**107.99**	6.79	**15.91**
Rototillers	Life = 15	Annual hours use = 100	Annual repair rate = 6%	replacement cost	Salvage value = 10%	replacement cost			
5' Rotor	80	3,115	20.07	14.45	3.58	1.87	**39.92**	1.27	**31.36**
6' Rotor	100	3,700	26.81	18.92	4.19	2.22	**52.13**	1.53	**34.13**
8' Rotor	120	6,460	32.24	23.58	7.31	3.88	**67.01**	2.04	**32.91**

NOTE: *Annual Hours of Tractor Use* figures are used to determine above *Powered Unit* costs.

Tillage/Seeding/Spraying Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Harrows	Life = 15	Annual hours use = 40	Annual repair rate = 2% replacement cost		Salvage value = 10% replacement cost				
Spring tooth 50'	100	12,730	26.81	18.92	36.03	6.37	**88.11**	29.70	**2.97**
Spring tooth 80'	150	16,670	39.65	27.69	47.18	8.34	**122.85**	47.52	**2.59**
Harrow packers 60'	150	23,775	39.65	27.69	67.28	11.89	**146.51**	21.21	**6.91**
Harrow packers 70'	180	28,170	46.82	33.35	79.72	14.09	**173.97**	29.70	**5.86**
Heavy Harrow 60'	180	25,350	46.82	33.35	71.74	12.68	**164.58**	29.70	**5.54**
Seed Drills	Life = 6	Annual hours use = 100	Annual repair rate = 2% replacement cost		Salvage value = 50% replacement cost				
End wheel 12'	60	21,375	13.05	10.44	31.40	4.28	**59.17**	4.36	**13.56**
Hoe drill 12'	80	24,200	20.07	14.45	35.55	4.84	**74.91**	4.36	**17.17**
Zero/Min. till 10'	80	44,500	20.07	14.45	65.38	8.90	**108.80**	3.64	**29.92**
Air seeder w/cult.	Life = 6	Annual hours use = 150	Annual repair rate = 3% replacement cost		Salvage value = 50% replacement cost				
30' Air seeder	180	86,500	46.82	33.35	84.72	17.30	**182.19**	10.91	**16.70**
40' Air seeder	300	99,830	57.14	48.02	97.78	19.97	**222.90**	14.55	**15.32**
50' Air seeder	350	125,000	60.55	53.29	122.43	25.00	**261.26**	18.18	**14.37**
Air drills	Life = 6	Annual hours use = 150	Annual repair rate = 3% replacement cost		Salvage value = 50% replacement cost				
30' Air drill with packer wheels	180	93,200	46.82	33.35	91.28	18.64	**190.09**	10.91	**17.42**
40' Air drill with packer wheels	300	116,400	57.14	48.02	114.00	23.28	**242.44**	14.55	**16.67**
50' Air drill with packer wheels	425	140,400	63.80	60.66	137.51	28.08	**290.05**	18.18	**15.95**
Sprayer (trailer)	Life = 15	Annual hours use = 50	Annual repair rate = 3% replacement cost		Salvage value = 10% replacement cost				
625 gallon 60' low volume air assist	80	23,090	20.07	14.45	44.72	13.85	**93.09**	30.55	**3.05**
800 gallon 80'	150	28,250	39.65	27.69	54.71	16.95	**139.00**	40.73	**3.41**
1200 gallon 110'	150	41,190	39.65	27.69	79.77	24.71	**171.82**	56.00	**3.07**
Sprayer (SP)	Life = 10	Annual hours use = 200	Annual repair rate = 3% replacement cost		Salvage value = 50% replacement cost				
400 gallon 70' 100-125HP High clearance	125	105,000	59.42	24.29			**83.71**	50.90	**1.64**
600 gallon 70' 125-135HP High clearance	135	157,500	89.13	33.40			**122.53**	50.90	**2.41**
800 gallon 90' 150-200HP High clearance	200	230,670	130.54	48.02			**178.57**	65.50	**2.73**
1000 gallon 120' 250HP	250	305,000	172.61	62.82			**235.43**	87.37	**2.69**

400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Forage Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Swather (SP)	Life = 7	Annual hours use = 100	Annual repair rate = 3%	replacement cost	Salvage value = 50%	replacement cost			
Diesel with 20' header	80	84,670	114.13	30.77			**144.90**	8.50	**17.05**
Swather (pull-type)	Life = 7	Annual hours use = 100	Annual repair rate = 3%	replacement cost	Salvage value = 50%	replacement cost			
21' Grain	80	18,175	20.07	14.45	24.50	5.45	**64.47**	8.91	**7.24**
25' Grain	80	20,512	20.07	14.45	27.65	6.15	**68.32**	10.61	**6.44**
Disk Mower	Life = 6	Annual hours use = 100	Annual repair rate = 3%	replacement cost	Salvage value = 50%	replacement cost			
15' SP Diesel	0	104,900	154.11	48.65			**202.76**	6.40	**31.68**
9'	80	25,250	20.07	14.45	37.10	7.58	**79.19**	3.82	**20.74**
12'	100	31,335	26.81	18.92	46.03	9.40	**101.16**	5.09	**19.87**
Mower conditioner	Life = 7	Annual hours use = 100	Annual repair rate = 3%	replacement cost	Salvage value = 50%	replacement cost			
14' SP Diesel	100	95,650	128.93	37.47			**166.40**	5.93	**28.06**
9' PTO	80	18,670	20.07	14.45	25.17	5.60	**65.29**	3.82	**17.10**
12' PTO	100	26,375	26.81	18.92	35.55	7.91	**89.19**	5.09	**17.52**
14" PTO	120	32,270	32.24	23.58	43.50	9.68	**109.00**	5.94	**18.35**
Rotary mowers	Life = 7	Annual hours use = 100	Annual repair rate = 3%	replacement cost	Salvage value =50%	replacement cost			
10' Heavy duty	100	15,174	26.81	18.92	20.45	4.55	**70.73**	4.24	**16.67**
26' Wing type	150	29,230	39.65	27.69	39.40	8.77	**115.51**	11.03	**10.47**
Rake	Life = 15	Annual hours use = 50	Annual repair rate = 3%	replacement cost	Salvage value = 10%	replacement cost			
9' Parallel Bar	40	11,190	9.65	6.85	25.33	6.71	**48.56**	3.82	**12.72**
Forage harvester	Life = 6	Annual hours use = 400	Annual repair rate = 3%	replacement cost	Salvage value = 50%	replacement cost			
SP 350 HP	350	276,450	101.53	54.02			**155.56**	8.50	**18.30**
SP 450 HP	450	307,570	112.96	71.39			**184.36**	8.50	**21.69**
20" Pulltype	150	41,670	39.65	27.69	15.30	3.13	**85.77**	6.79	**12.64**
26" Pulltype	180	51,482	46.82	33.35	18.91	3.86	**102.94**	8.48	**12.13**
Dump wagon	Life = 15	Annual hours use = 200	Annual repair rate = 2%	replacement cost	Salvage value = 10%	replacement cost			
Small (700 cu ft)	0	18,330			10.37	1.83	**12.21**		
Medium (900 cu ft)	0	22,670			12.83	2.27	**15.10**		
Large (1200 cu ft) Conveyor type	0	27,000			15.28	2.70	**17.98**		

400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Tillage/Seeding/Spraying Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Harrows	Life = 15 Annual hours use = 40 Annual repair rate = 2% replacement cost Salvage value = 10% replacement cost								
Spring tooth 50'	100	12,730	26.81	18.92	36.03	6.37	88.11	29.70	2.97
Spring tooth 80'	150	16,670	39.65	27.69	47.18	8.34	122.85	47.52	2.59
Harrow packers 60'	150	23,775	39.65	27.69	67.28	11.89	146.51	21.21	6.91
Harrow packers 70'	180	28,170	46.82	33.35	79.72	14.09	173.97	29.70	5.86
Heavy Harrow 60'	180	25,350	46.82	33.35	71.74	12.68	164.58	29.70	5.54
Seed Drills	Life = 6 Annual hours use = 100 Annual repair rate = 2% replacement cost Salvage value = 50% replacement cost								
End wheel 12'	60	21,375	13.05	10.44	31.40	4.28	59.17	4.36	13.56
Hoe drill 12'	80	24,200	20.07	14.45	35.55	4.84	74.91	4.36	17.17
Zero Min. till 10'	80	44,500	20.07	14.45	65.38	8.90	108.80	3.64	29.92
Air seeder w cult	Life = 6 Annual hours use = 150 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost								
30' Air seeder	180	86,500	46.82	33.35	84.72	17.30	182.19	10.91	16.70
40' Air seeder	300	99,830	57.14	48.02	97.78	19.97	222.90	14.55	15.32
50' Air seeder	350	125,000	60.55	53.29	122.43	25.00	261.26	18.18	14.37
Air drills	Life = 6 Annual hours use = 150 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost								
30' Air drill with packer wheels	180	93,200	46.82	33.35	91.28	18.64	190.09	10.91	17.42
40' Air drill with packer wheels	300	116,400	57.14	48.02	114.00	23.28	242.44	14.55	16.67
50' Air drill with packer wheels	425	140,400	63.80	60.66	137.51	28.08	290.05	18.18	15.95
Sprayer (trailer)	Life = 15 Annual hours use = 50 Annual repair rate = 3% replacement cost Salvage value = 10% replacement cost								
625 gallon 60' low volume air assist	80	23,090	20.07	14.45	44.72	13.85	93.09	30.55	3.05
800 gallon 80'	150	28,250	39.65	27.69	54.71	16.95	139.00	40.73	3.41
1200 gallon 110'	150	41,190	39.65	27.69	79.77	24.71	171.82	56.00	3.07
Sprayer (SP)	Life = 10 Annual hours use = 200 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost								
400 gallon 70' 100-125HP High clearance	125	105,000	59.42	24.29			83.71	50.90	1.64
600 gallon 70' 125-135HP High clearance	135	157,500	89.13	33.40			122.53	50.90	2.41
800 gallon 90' 150-200HP High clearance	200	230,670	130.54	48.02			178.57	65.50	2.73
1000 gallon 120' 250HP	250	305,000	172.61	62.82			235.43	87.37	2.69

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Forage Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (acre/hr)	Total Machine Cost ($/acre)
Swather (SP)	Life = 7	Annual hours use = 100 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
Diesel with 20' header	80	84,670	114.13	30.77			144.90	8.50	17.05
Swather (pull-type)	Life = 7	Annual hours use = 100 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
21' Grain	80	18,175	20.07	14.45	24.50	5.45	64.47	8.91	7.24
25' Grain	80	20,512	20.07	14.45	27.65	6.15	68.32	10.61	6.44
Disk Mower	Life = 6	Annual hours use = 100 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
15' SP Diesel	0	104,900	154.11	48.65			202.76	6.40	31.68
9'	80	25,250	20.07	14.45	37.10	7.58	79.19	3.82	20.74
12'	100	31,335	26.81	18.92	46.03	9.40	101.16	5.09	19.87
Mower conditioner	Life = 7	Annual hours use = 100 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
14' SP Diesel	100	95,650	128.93	37.47			166.40	5.93	28.06
9' PTO	80	18,670	20.07	14.45	25.17	5.60	65.29	3.82	17.10
12' PTO	100	26,375	26.81	18.92	35.55	7.91	89.19	5.09	17.52
14' PTO	120	32,270	32.24	23.58	43.50	9.68	109.00	5.94	18.35
Rotary mowers	Life = 7	Annual hours use = 100 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
10' Heavy duty	100	15,174	26.81	18.92	20.45	4.55	70.73	4.24	16.67
20' Wing type	150	29,230	39.65	27.69	39.40	8.77	115.51	11.03	10.47
Rake	Life = 15	Annual hours use = 50 Annual repair rate = 3% replacement cost Salvage value = 10% replacement cost							
9' Parallel Bar	40	11,180	9.65	6.85	25.33	6.71	48.56	3.82	12.72
Forage harvester	Life = 6	Annual hours use = 400 Annual repair rate = 3% replacement cost Salvage value = 50% replacement cost							
SP 350 HP	350	276,450	101.53	54.02			155.56	8.50	18.30
SP 450 HP	450	307,570	112.96	71.39			184.36	8.50	21.69
20' Pull-type	150	41,670	39.65	27.69	15.40	3.13	85.77	6.79	12.64
26' Pull-type	180	51,480	46.82	33.35	18.91	3.86	102.94	8.48	12.13
Dump wagon	Life = 15	Annual hours use = 200 Annual repair rate = 2% replacement cost Salvage value = 10% replacement cost							
Small (700 cu ft)	0	18,320			10.47	1.83	12.21		
Medium (900 cu ft)	0	22,670			12.83	2.27	15.10		
Large (1200 cu ft) Conveyor type	0	25,940			15.28	2.70	17.98		

Baling Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (bale/hr)	Total Machine Cost ($/bale)
Balers (standard)	Life = 7	Annual hours use = 100	Annual repair rate = 3%		replacement cost	Salvage value = 50%	replacement cost		
Small 14" X 18"	60	23,860	13.05	10.44	32.16	7.16	**62.81**	200.00	**0.31**
Large 16" X 18"	80	27,125	20.07	14.45	36.56	8.14	**79.22**	300.00	**0.26**
Large round	Life = 7	Annual hours use = 100	Annual repair rate = 3%		replacement cost	Salvage value = 50%	replacement cost		
4' X 6' Bale	80	28,830	20.07	14.45	38.86	8.65	**82.03**	18.00	**4.56**
5' X 6' Bale	100	39,920	26.81	18.92	53.81	11.98	**111.51**	16.00	**6.97**
Large square	Life = 10	Annual hours use = 300	Annual repair rate = 3%		replacement cost	Salvage value = 50%	replacement cost		
1500 - 2000 lb Bale	150	129,500	39.65	27.69	48.86	12.95	**129.15**	10.00	**12.91**
Bale wagons	Life = 12	Annual hours use = 150	Annual repair rate = 3%		replacement cost	Salvage value = 50%	replacement cost		
SP 160 Bale	80	125,000	87.44	45.73			**133.16**	400.00	**0.33**

400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Cost of twine not included

Years life = 7
Annual use (Hrs) = 100, 200*, 300
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Combines

Combine Cylinder Width	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted) ($/hr)	Total Machine Cost ($/hr)
SP Diesel	100			308.57		357.94
50 Inch Cylinder	200	28	228,920	154.28	49.37	203.66
(HP=175)	300			102.86		152.23
SP Diesel	100			343.43		398.82
60 Inch Cylinder	200	32	254,780	171.71	55.40	227.11
(HP=270)	300			114.48		169.87
Rotary type	100			295.20		346.30
(Small)	200	34	219,000	147.60	51.11	198.70
(HP=175)	300			98.40		149.50
Rotary type	100			352.63		412.81
(Medium)	200	39	261,610	176.32	60.18	236.50
(HP=250)	300			117.54		177.73
Rotary type	100			382.69		452.12
(Large)	200	50	283,910	191.35	69.43	260.78
(HP=300)	300			127.56		197.00

* This *Annual Hours Used* figure is typical.
400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Baling Equipment

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Total Machine Cost (bale/hr)	Total Machine Cost ($/bale)
Balers (standard)	Life = 7	Annual hours use = 100	Annual repair rate = 3% replacement cost			Salvage value = 50% replacement cost			
Small 14" X 18"	60	23,860	13.05	10.44	32.16	7.16	62.81	200.00	0.31
Large 16" X 18"	80	27,125	20.07	14.45	36.56	8.14	79.22	300.00	0.26
Large round	Life = 7	Annual hours use = 100	Annual repair rate = 3% replacement cost			Salvage value = 50% replacement cost			
4' X 6' Bale	80	28,830	20.07	14.45	38.86	8.65	82.03	18.00	4.56
5' X 6' Bale	100	39,920	26.81	18.92	53.81	11.98	111.51	16.00	6.97
Large square	Life = 10	Annual hours use = 300	Annual repair rate = 3% replacement cost			Salvage value = 50% replacement cost			
1500 - 2000 lb Bale	150	129,500	39.65	27.69	48.86	12.95	129.15	10.00	12.91
Bale wagons	Life = 12	Annual hours use = 150	Annual repair rate = 3% replacement cost			Salvage value = 50% replacement cost			
SP 160 Bale	80	125,000	87.44	45.73			133.16	400.00	0.33

400 [illegible] figures are used to determine above [illegible] costs

Cost of twine not included

Years life = 7
Annual use (Hrs) = 100, 200*, 300
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Combines

Combine Cylinder Width	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted) ($/hr)	Total Machine Cost ($/hr)
SP Diesel	100			308.57		357.94
50 Inch Cylinder	200	28	228,920	154.28	49.37	203.66
(HP=175)	300			102.86		152.23
SP Diesel	100			343.43		398.82
60 Inch Cylinder	200	32	254,780	171.71	55.40	227.11
(HP=270)	300			114.48		169.87
Rotary type	100			295.20		346.30
(Small)	200	34	219,000	147.60	51.11	198.70
(HP=175)	300			98.40		149.50
Rotary type	100			352.63		412.81
(Medium)	200	39	261,610	176.32	60.18	236.50
(HP=250)	300			117.54		177.73
Rotary type	100			382.69		452.12
(Large)	200	50	283,910	191.35	69.43	260.78
(HP=300)	300			127.56		197.00

* This *Annual Hours of Use* figure is typical.
300 *Annual Hours of Use* figures are used to determine above *Price List* costs.

Grinders/Mixers/Dryers

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)		
Bale processor	Life = 12	Annual hours use = 80	Annual repair rate = 3%	replacement cost	Salvage value = 10%	replacement cost			
Bale shredder	80	16,800	20.07	14.45	26.83	6.30	**67.65**		
Tub grinder	Life = 12	Annual hours use = 80	Annual repair rate = 3%	replacement cost	Salvage value = 10%	replacement cost			
25 Tons/hour	120	36,500	32.24	23.58	58.29	13.69	**127.81**		
								Moisture Drop	
								20 – 14% ($/Tonne)	**17.5 – 14% ($/Tonne)**
Grain Dryers	Life = 12	Annual hours use = 80	Annual repair rate = 3%	replacement cost	Salvage value = 10%	replacement cost			
Continuous flow									
— small Propane = 110 L/hr	40	55,750	9.65	6.85	89.04	58.10	**142.44**	**23.74** (6.0 T/hr)	**14.99** (9.5 T/hr)
— medium Propane = 145 L/hr	40	76,250	9.65	6.85	121.78	77.62	**215.90**	**23.99** (9.0 T/hr)	**15.88** (13.6 T/hr)
— large Propane = 180 L/hr	40	99,500	9.65	6.85	158.91	98.17	**273.58**	**15.20** (18.0 T/hr)	**10.06** (27.2 T/hr)

400 *Annual Hours of Tractor Use* figures are used to determine above *Power Unit* costs.

Natural gas drying costs are lower than propane.

Other variables such as relative humidity and air temperature can dramatically affect fuel consumption and throughput.

Years life = 7
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Farm Trucks

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted) ($/hr)	Total Machine Cost ($/hr)
Trucks	Life = 10 Annual hours use = 350 Annual repair rate = 2% replacement cost Salvage value = 50% replacement cost					
	300			56.80		93.32
(475 HP with 63" Sleeper)	350	52	150,550	48.69	36.52	85.21
	400			42.60		79.12

			Powered Unit		Implement				
Implement	**Tractor H.P.**	**Current Replacement Cost ($)**	**Fixed Cost ($/hr)**	**Variable Cost ($/hr)**	**Fixed Cost ($/hr)**	**Variable Cost ($/hr)**	**Total Machine Cost ($/hr)**	**(acre/hr)**	**($/acre)**
Trailers	Life = 10 Annual hours use = 350 Annual repair rate = 2% replacement cost Salvage value = 50% replacement cost								
Closed Super B 28' 30'	475	61,470	48.69	36.52	58.45	5.27	148.93		
Open Super B 28' 30'	475	66,000	48.69	36.52	62.76	5.66	153.63		
Tri-Axle Drop Cattleliner 53'	475	35,000	48.69	36.52	33.28	3.00	121.49		
Tri-Axle Drop Flat Deck 53'	475	34,200	48.69	36.52	32.52	2.93	120.66		

Rock Pickers and Grain Vacuums

Rock picker	Life = 10 Annual hours use = 150 Annual repair rate = 6% replacement cost Salvage value = 50% replacement cost								
Rake - 14'	80	12,250	20.07	14.45	9.24	4.90	48.67	2.12	22.94
Rake - reel type	80	14,750	20.07	14.45	11.13	5.90	51.55	2.12	24.30
Grain vacuums	Life = 15 Annual hours use = 150 Annual repair rate = 3% replacement cost Salvage value = 10% replacement cost								
Large	120	16,000	32.24	23.58	12.07	3.20	71.10		

Irrigation Equipment

					($/hr)	(ac)	($/ac)
Centre Pivot	Life = 20 Annual hours use = 1000 Annual repair rate = 1.5% replacement cost Salvage value = 10% replacement cost						
1/4 Section Pivot & Electric Pump & Main Line	92,500	9.18	1.39		10.57	133	79.47
1/4 Section Pivot w/ Corner Attachment & Electric Pump & Main Line	114,800	11.39	1.72		13.11	147	89.18

Note: Irrigation equipment variable cost includes annual maintenance only.

Grinders/Mixers/Dryers

Implement	Tractor H.P.	Current Replacement Cost ($)	Powered Unit Fixed Cost ($/hr)	Powered Unit Variable Cost ($/hr)	Implement Fixed Cost ($/hr)	Implement Variable Cost ($/hr)	Total Machine Cost ($/hr)	Moisture Drop 20 – 14% ($/Tonne)	Moisture Drop 17.5 – 14% ($/Tonne)
Bale processor	Life = 12	Annual hours use = 80	Annual repair rate = 3% replacement cost				Salvage value = 10% replacement cost		
Bale shredder	80	16,800	20.07	14.45	26.83	6.30	67.65		
Tub grinder	Life = 12	Annual hours use = 80	Annual repair rate = 3% replacement cost				Salvage value = 10% replacement cost		
25 Tons/hour	120	36,500	32.24	23.58	58.29	13.69	127.81		
Grain Dryers	Life = 12	Annual hours use = 80	Annual repair rate = 3% replacement cost				Salvage value = 10% replacement cost		
Continuous flow									
— small Propane = 110 L/hr	40	55,750	9.65	6.85	89.04	58.10	**142.44**	**23.74** (6.0 T/hr)	**14.99** (9.5 T/hr)
— medium Propane = 145 L/hr	40	76,250	9.65	6.85	121.78	77.62	**215.90**	**23.99** (9.0 T/hr)	**15.88** (13.6 T/hr)
— large Propane = 180 L/hr	40	99,500	9.65	6.85	158.91	98.17	**273.58**	**15.20** (18.0 T/hr)	**10.06** (27.2 T/hr)

NOTE: *Annual Hours of Tractor Use* figures are used to determine *Annual Power Unit Costs*.
Natural gas-driven costs are lower than propane.
Other variables such as relative humidity and air temperature can dramatically affect fuel consumption and throughput.

Years life = 7
Annual repair rate = 3% of Replacement cost
Salvage Value = 50% Replacement cost

Farm Trucks

	Annual Hours of Use (hrs)	Diesel Use (Litres/hr)	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost (Labor Omitted) ($/hr)	Total Machine Cost ($/hr)
Trucks	Life = 10 Annual hours use = 350 Annual repair rate = 2% replacement cost Salvage value = 50% replacement cost					
	300			56.80		93.32
(475 HP with 63" Sleeper)	350	52	150,550	48.69	36.52	85.21
	400			42.60		79.12

			Powered Unit		Implement				
Implement	Tractor H.P.	Current Replacement Cost ($)	Fixed Cost ($/hr)	Variable Cost ($/hr)	Fixed Cost ($/hr)	Variable Cost ($/hr)	Total Machine Cost ($/hr)	(acre/hr)	($/acre)
Trailers	Life = 10 Annual hours use = 350 Annual repair rate = 2% replacement cost Salvage value = 50% replacement cost								
Closed Super B 28' 30'	475	61,470	48.69	36.52	58.45	5.27	148.93		
Open Super B 28' 30'	475	66,000	48.69	36.52	62.76	5.66	153.63		
Tri-Axle Drop Cattleliner 53'	475	35,000	48.69	36.52	33.28	3.00	121.49		
Tri-Axle Drop Flat Deck 53'	475	34,200	48.69	36.52	32.52	2.93	120.66		

Rock Pickers and Grain Vacuums

Rock picker	Life = 10 Annual hours use = 150 Annual repair rate = 6% replacement cost Salvage value = 50% replacement cost								
Rake - 14	80	12,250	20.07	14.45	9.24	4.90	48.67	2.12	22.94
Rake - reel type	80	14,750	20.07	14.45	11.13	5.90	51.55	2.12	24.30
Grain vacuums	Life = 15 Annual hours use = 150 Annual repair rate = 3% replacement cost Salvage value = 10% replacement cost								
Large	120	16,000	32.24	23.58	12.07	3.20	71.10		

Irrigation Equipment

					($/hr)	(ac)	($/ac)
Centre Pivot	Life = 20 Annual hours use = 1000 Annual repair rate = 1.5% replacement cost Salvage value = 10% replacement cost						
1-4 Section Pivot & Electric Pump & Main Line	92,500	9.18	1.39		10.57	133	79.47
1-4 Section Pivot w/ Corner Attachment & Electric Pump & Main Line	114,800	11.39	1.72		13.11	147	89.18

[illegible]

Calculating Farm Machinery Costs

Preface

The worksheets and tables on the following pages can be used to calculate the costs of operating your own machines. An explanation of the variables is provided on the following page. A sample calculation is done for you on pages 32 through 34, and blank worksheets are provided on pages 35 through 37. Standards for fuel consumption, depreciation, annual use, repair rates and field efficiency are given in the tables on pages 38 and 39. **During 1999, we developed an online machinery cost calculator that brings the worksheet on page 33 to life. This calculator is available free of charge to you at www.agric.gov.ab.ca/machcost**

Online Cost Calculator Instructions

To use the calculator:

Page 1 has 3 list boxes:

1. Power units and self propelled — click on it and scroll down until you find the machine you want and highlight it (e.g. 300 hp tractor)
2. Implement 1 — if you selected a tractor in the first window, now select the implement you want to pull (e.g. 40 ft air seeder).
3. Implement 2 — if you are pulling two implements, click on this and select the second implement (e.g. harrow packer). If you aren't pulling two implements in tandem, ignore the second implement.
4. After selecting the machine(s) you want, click on the **proceed to calculator** button, and page 2 will appear.

Page 2 has the cost information for the specific machine you chose from the database. All these numbers are soft, so you can override one or all of them and enter your own numbers. To do this, just click on the number you want to change and type in the new number. When you have all the input data modified to your satisfaction, click on **calculate costs.**

Page 3 — the top (Input Parameters) is a summary of your input data. The bottom is the calculated cost result. If you want to change any of the inputs, click on the back button, which will take you back to the second page.

If you have any problems using the calculator, please contact Brad Smith at (403) 653-5136 or e-mail bradley.smith@gov.ab.ca

If you need further assistance in using this material, contact an Alberta Agriculture, Food and Rural Development Risk Management Specialist at one of the following locations.

Office	Phone
Airdrie	(403) 948-8524
Cardston	(403) 653-5136
Leduc	(780) 986-8992
Red Deer	(403) 340-7007
Vegreville	(780) 632-5417
Wetaskiwin	(780) 361-1241

To contact a Risk Management Specialist outside your local calling area, use the RITE system for toll-free long distance service. Just dial 310-0000 and then enter the seven digit number of the office you want, or stay on the line to get operator assistance.

Machinery Cost Terms

Record all the information needed to calculate ownership and operating costs on page 33. Items **N** through **Q** will require use of the formulas on page 32.

Term	Line	Information Required
Machine description		The machine's make and model.
Data and Assumptions		
Today's new price	A	The suggested retail price of the desired machine (new or used).
Planning period	B	The number of years the machine will be owned.
Today's used price	C	The price of a used machine that is similar to the new, desired machine and as old as the planning period.
Annual hours of use	D	Total annual use for all operations.
Fuel usage	E	Litres or gallons per hour.
Fuel cost	F	$ per gallon or litre
Labour cost	G	$ per hour
Annual repair rate	H	Percentage of new price [refer to table on page 38].
Risk-free interest rate	I	The Bank of Canada 90 day T-Bill rate or equivalent.
Risk premium	J	A value estimate that represents the additional risk of the investment over and above the 90 day T-bill rate. [6% is commonly used]
Marginal tax rate	K	The expected marginal tax rate of the farm business during the planning period.
Rate of inflation	L	The current rate of inflation, e.g. the consumer price index.
Capital cost allowance Class rate	M	The appropriate tax percentage depreciation rate for the machine. Generally: 30% for tractors, trucks and self-propelled machines: 20% for pull-type equipment.
Formulas		
Real discount rate	N	Interest rate adjusted for expected risk and inflation. [calculated on page 32]
Real discount factor	O	Value used to arrive at the present value (dollar amount) of the future salvage value of the machine. [calculated on page 32]
Capital cost allowance (CCA) Adjustment factor	P	Value used to arrive at the after tax capital outlay as well as adjustment for the after tax salvage value. [calculated on page 32]
Capital recovery factor	Q	Value that recovers that capital value of the machine through time with the specified real return. [calculated on page 32]

Using the Data and Assumptions [items A through M] and the Formula Results [items N through Q], calculate the ownership and operating costs for the machine combination. The summary sheet on page 34 can be used to list and total costs for all field operations and to calculate per acre (bale, bushel, etc.) values.

Worksheet Formulas

N Real Discount Rate

$$= \left[\left(\frac{(1 + I + J)}{1 + L}\right) - 1\right] \times (1 - K) = \left[\left(\frac{(1 + .0277 + .06)}{1 + .02}\right) - 1\right] \times (1 - 0)$$

I = Interest rate
J = Risk premium
K = Marginal tax rate
L = Rate of inflation

$= .0664$

O Real Discount Factor – Power unit or self-propelled machine

$$= \frac{1}{(1 + N)^B} \qquad = \frac{1}{(1 + .0664)^{12}} = .4623$$

Implement 1 $= \frac{1}{(1 + .0664)^{6}} = .6800$

Implement 2 $= \frac{1}{(1 + \quad)} =$

B = Planning period
N = Real discount rate

P CCA Adjustment Factor – Power unit or self-propelled machine

$$= 1 - \left(\frac{M \times K}{M + N}\right) \qquad = 1 - \left(\frac{.30 \times 0}{.30 + .0664}\right) = 1$$

Implement 1 $= 1 - \left(\frac{.20 \times 0}{.20 + .0664}\right) = 1$

Implement 2 $= 1 - \left(\frac{\times}{+}\right) =$

K = Marginal tax rate
M = CCA class rate
N = Real discount rate

Q Capital Recovery Factor

$$= \frac{N}{(1 - O)} \qquad = \frac{.0664}{(1 - .4623)} = .1235$$

Implement 1 $= \frac{.0664}{(1 - .6800)} = .2075$

Implement 2 $= \frac{}{(1 - \quad)} =$

N = Real discount rate
O = Real discount factor

Machinery Cost Worksheet

Field Operation	Power Unit or self – propelled unit	Implement 1	Implement 2	Total
Machine descriptions:	300 HP 4WD Tractor	40 ft Air Drill		
Data & assumptions				
A New price	$ 217.840	$ 99.830	$	
B Planning period (years)	12 yrs	6 yrs	yrs	
C Used price	$ 108.920	$ 49.915	$	
D Annual hours of use (total use all operations)	400 hrs	150 hrs	hrs	
E Fuel usage (litres per hour)	59 l/hr			
F Fuel cost ($ per litre)	$ 0.4669			
G Labour cost ($ per hour)	$ 0			
H Annual repair rate (% of new price)	3.0 %	3.0 %	%	
I Interest rate (risk free)	2.77 %			
J Risk premium	6.0 %			
K Marginal tax rate	0 %			
L Rate of inflation	2.0 %			
M CCA class rate	30 %	20 %	%	
Formula results				
N Real discount rate	.0664			
O Real discount factor	.0623	.6800		
P CCA adjustment factor	1	1		
Q Capital recovery factor	.1235	.2075		
Ownership Costs				
1. Capital recovery ($ per year) = [(Line A x Line P) – (Line C x Line P x Line O)] x Line Q	$ 20.685	$ 13.672	$	
2. Insurance and housing ($ per year) = Line A x 1%	$ 2.178	$ 998	$	
3. Total annual ownership costs = Line 1 + Line 2	$ 22.863	$ 14.670	$	
4. Total ownership costs per hour = Line 3÷Line D	$ 57.16	$ 97.80	$	$ 154.96
Operating Costs				
5. Fuel cost = Line E x Line F x Line D x (1 – Line K)	$ 11.020			
6. Lubrication = Line 5 x 15%	$ 1.653			
7. Repairs = Line A x Line H	$ 6.535	$ 2.995	$	
8. Labor = Line D x Line G	$ 0			
9. Total annual operating costs = Line 5 + Line 6 + Line 7 + Line 8	$ 19.207	$ 2.995	$	
10. Total annual operating costs per hour = Line 9÷Line D	$ 48.02	$ 19.97	$	$ 67.99
Total Cost				
1. Total annual costs = Line 3 + Line 9	$ 42.070	$ 17.665	$	
2. Total cost per hour = Line 4 + Line 10	$ 105.17	$ 117.77	$	$ 222.94

See online Machinery Cost Calculator at www.agric.gov.ab.ca/machcost

Machinery Cost Summary

Machine	Annual hours	Working width (ft)	Working speed (mph)	Field efficiency	Acres per hour	$ per hour	$ per hour (power unit & implement)	$ per acre
Tractor 470D 300 HP	400	—	—	—	—	105.25	—	—
Air Seeder w/cart 40'	150	40	5	60%	14.56	117.98	223.23	15.33
Tractor FWA 150 HP	400	—	—	—	—	50.20	—	—
Heavy Harrow 60'	40	60	7	70%	29.67	54.55	164.76	5.55
Tractor FWA 100 HP	400	—	—	—	—	45.74	—	—
Large Round Baler 5' x 6'	100	14	5	60%	5.09	65.57	111.61	21.92
Swather Diesel 20'	100	20	5	70%	8.48	145.08	—	17.10
Rotary Combine 300 HP	200	30	5	70%	12.78	261.08	—	20.42

Machinery Cost Summary

Machine	Annual hours	Working width (ft)	Working speed (mph)	Field efficiency	Acres per hour	$ per hour	$ per hour (power unit & implement)	$ per acre
Tractor 4WD 300 HP	400	—	—	—	—	105.25	—	—
Air Seeder w/cult 40'	150	40	5	60%	14.56	117.98	223.23	15.33
Tractor FWA 180 HP	400	—	—	—	—	80.20	—	—
Heavy Harrow 60'	40	60	7	70%	29.67	84.55	164.76	5.55
Tractor FWA 100 HP	400	—	—	—	—	45.74	—	—
Large Round Baler 5' x 6'	100	14	5	60%	5.09	65.87	111.61	21.92
Swather Diesel 20'	100	20	5	70%	8.48	145.08	—	17.10
Rotary Combine 300 HP	200	30	5	70%	12.78	261.08	—	20.42

Worksheet Formulas

N Real Discount Rate

$$= \left[\left(\frac{(1 + I + J)}{1 + L}\right) - 1\right] \times (1 - K) = \left[\left(\frac{(1 + \_\_\_ + \_\_\_)}{1 + \_\_\_}\right) - 1\right] \times (1 - \_\_\_)$$

$$= \_\_\_\_\_$$

I = Interest rate
J = Risk premium
K = Marginal tax rate
L = Rate of inflation

O Real Discount Factor – Power unit or self-propelled machine

$$= \frac{1}{(1 + N)^B} \qquad = \frac{1}{(1 + \_\_\_)} = \_\_\_\_\_$$

Implement 1

$$= \frac{1}{(1 + \_\_\_)} = \_\_\_\_\_$$

Implement 2

$$= \frac{1}{(1 + \_\_\_)} = \_\_\_\_\_$$

B = Planning period
N = Real discount rate

P CCA Adjustment Factor – Power unit or self-propelled machine

$$= 1 - \left(\frac{M \times K}{M + N}\right) \qquad = 1 - \left(\frac{\_\_\_ \times \_\_\_}{\_\_\_ + \_\_\_}\right) = \_\_\_\_\_$$

Implement 1

$$= 1 - \left(\frac{\_\_\_ \times \_\_\_}{\_\_\_ + \_\_\_}\right) = \_\_\_\_\_$$

Implement 2

$$= 1 - \left(\frac{\_\_\_ \times \_\_\_}{\_\_\_ + \_\_\_}\right) = \_\_\_\_\_$$

K = Marginal tax rate
M = CCA class rate
N = Real discount rate

Q Capital Recovery Factor

$$= \frac{N}{(1 - O)} \qquad = \frac{\_\_\_\_\_}{(1 - \_\_\_)} = \_\_\_\_\_$$

Implement 1

$$= \frac{\_\_\_\_\_}{(1 - \_\_\_)} = \_\_\_\_\_$$

Implement 2

$$= \frac{\_\_\_\_\_}{(1 - \_\_\_)} = \_\_\_\_\_$$

N = Real discount rate
O = Real discount factor

Machinery Cost Worksheet

Field Operation	Power Unit or self – propelled unit	Implement 1	Implement 2	Total
Machine descriptions:				
Data & assumptions				
A New price	$	$	$	
B Planning period (years)	yrs	yrs	yrs	
C Used price	$	$	$	
D Annual hours of use (total use all operations)	hrs	hrs	hrs	
E Fuel usage (litres per hour)	l/hr			
F Fuel cost ($ per litre)	$			
G Labour cost ($ per hour)	$			
H Annual repair rate (% of new price)	%	%	%	
I Interest rate (risk free)	%			
J Risk premium	%			
K Marginal tax rate	%			
L Rate of inflation	%			
M CCA class rate	%	%	%	
Formula results				
N Real discount rate				
O Real discount factor				
P CCA adjustment factor				
Q Capital recovery factor				
Ownership Costs				
1. Capital recovery ($ per year) = [(Line A x Line P) – (Line C x Line P x Line O)] x Line Q	$	$	$	
2. Insurance and housing ($ per year) = Line A x 1%	$	$	$	
3. Total annual ownership costs = Line 1 + Line 2	$	$	$	
4. Total ownership costs per hour = Line 3 ÷ Line D	$	$	$	$
Operating Costs				
5. Fuel cost = Line E x Line F x Line D x (1 – Line K)	$			
6. Lubrication = Line 5 x 15%	$			
7. Repairs = Line A x Line H	$	$	$	
8. Labor = Line D x Line G	$			
9. Total annual operating costs = Line 5 + Line 6 + Line 7 + Line 8	$	$	$	
10. Total annual operating costs per hour = Line 9 ÷ Line D	$	$	$	$
Total Cost				
1. Total annual costs = Line 3 + Line 9	$	$	$	
2. Total cost per hour = Line 4 + Line 10	$	$	$	$

See online Machinery Cost Calculator at www.agric.gov.ab.ca/machcost

Machinery Cost Summary

Machine	Annual hours	Working width (ft)	Working speed (mph)	Field efficiency	Acres per hour	$ per hour	$ per hour (power unit & implement)	$ per acre

Machinery Cost Summary

Machine	Annual hours	Working width (ft)	Working speed (mph)	Field efficiency	Acres per hour	$ per hour	$ per hour (power unit & implement)	$ per acre

Fuel Consumption for Varying Tractor Horsepower[1]

Tractor type and size	Average drawbar horsepower[2]		Average fuel consumption[3] (Litres per hours)	
	Diesel tractors	Gasoline tractors	Diesel tractors	Gasoline tractors
Two-wheel drive PTO HP				
30 - 39	—	31.5	—	
40 - 49	—	38.3	—	
50 - 59	48.2	47.1	10.5	
60 - 69	56.2	55.2	13.6	
70 - 79	65.5	64.5	16.4	
80 - 89	73.5	74.5	17.7	
90 - 99	84.0	82.0	20.5	
100 - 119	90.3	—	22.7	—
120 - 139	111.6	—	28.2	—
140 - 159	128.9	—	32.3	—
160 - 179	145.8	—	38.6	—
Over 180	148.9	—	39.1	—
Four-wheel drive DBHP				
100 - 149	135.0	—	33.2	—
150 - 174	159.4	—	40.3	—
175 - 199	182.8	—	50.0	—
200 - 224	217.4	—	53.0	—
225 - 249	235.5	—	58.0	—
250 - 274	265.0	—	61.4	—
275 - 299	281.3	—	62.6	—
300 - 349	305.0	—	66.4	—

This data on fuel consumption for different sizes of tractors was calculated from the Nebraska Tractor Tests Reports. The fuel consumption figures are based on "75% of Pull at Maximum Power." These fuel consumption figures are for tractors under normal load in average field conditions. Fuel use per hour will be affected by:

- load factor (75% is assumed in these estimates)
- engine RPM
- gear
- correct engine tuning

While these figures may be a good indication of fuel use per hour for a machine, fuel consumption per acre will be affected by the Field Efficiency related to each operation. Estimation of total fuel consumption should take this factor into account. Some factors that can significantly affect field efficiency include:

- wheel slippage
- tire pressure
- tractor ballast
- depth of and sharpness of implement
- soil type and condition
- amount of turning required
- implement overlap in each pass
- downtime to refill seed and fertilizer boxes

[1] This data was summarized from "Nebraska Tractor Test Summary 1972 through 1981," *The Grain Grower*, Page 762 (UGG), April 1982 and from 1980 - 1981 Agricultural Yearbook, S.S.A.E., May, 1980, pp 537 - 545.
[2] Average drawbar horsepower for all tractors in each range.
[3] Average fuel consumption for all tractors in each range.

Machinery Costs Assumption Guide

Machine	Depreciation lifetime[1] (Years)	Annual use[2] (Hours)	Annual repair rate[3] % orig. cost	Field efficiency[4]	Salvage value % orig. cost
Tractors	10	400	3%	—	50%
Combines	7	150	3%	60 – 80%	50%
Cultivators	15	250	3 - 8%	70 – 90%	10%
Discers	15	150	3%	70 – 90%	10%
Seed drills	6	100	2%	65 – 80%	50%
Harrows, packers	15	40	2%	70 – 90%	10%
Sprayers	15	50	2%	50 – 80%	10%
Stone pickers	15	40	2%	50 – 90%	50%
Swathers	7	100	3%	70 – 85%	50%
Rakes	15	50	2%	60 – 90%	10%
Mower-conditioner	6	50	2%	60 – 85%	50%
Forage harvester	6	80	3%	50 – 80%	50%
Standard balers	7	80	3%	50 – 85%	50%
Large round balers	7	60	2%	60 – 85%	50%
Grain dryers	12	200	3%	—	10%
Loaders	15	40	2%	—	10%
Air drills	6	100	2%	65 – 80%	50%

[1]Estimated average number of years until a machine depreciates to the salvage value.
[2]Estimated average annual farm use.
[3]Estimates are based on average conditions and the indicated annual hours of use. Repair rates may be higher for older machines, more hours of annual use or more difficult working conditions.
[4]Field efficiency is a percentage estimate of the amount of time machinery is actually in use relative to the total time required to complete an operation (refer also to page 38).

Acres Per Hour

Acres per hour or "effective field capacity" can be calculated using the following formula:

Acres per hour (effective field capacity)

$$= \frac{\text{machine width (ft)} \times \text{speed (mph)} \times \text{field efficiency}}{8.25}$$

e.g. A 31 foot cultivator travelling at 5 mph operating at 80% field efficiency would have an effective field capacity of:

Acres per hour

$$= \frac{31 \times 5 \times .80}{8.25} = 15 \text{ ac/hr}$$

Power Required for Tillage

(H.P./Ft. width)

Machine	H.P. Drawbar 2" (5 mph)	H.P. Drawbar 5" (5 mph)	H.P. P.T.O. Light (6.2 mph)	H.P. P.T.O. Heavy (6.2 mph)
Chisel Plow	1.5	3.4	5.0	6.0
Field Cult.	.7	1.8(4")	3.4	5.0
Tandem Disc	1.6	5.0	5.1	7.5
Blade Cult.	2.6	4.5	4.8 (5 mph)	

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[illegible]

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Blade Cult.	2.6	4.5	4.8 (5 mph)	

Pulse Crops in Alberta

Whether you are looking to diversify or already growing them, this book is a "must have" for anyone interested in pulse crops. Learn the basics about pulse production or get more specifics in full-color pages on field pea, dry bean, lentil and fababean. It also provides information on some lesser known pulses in Alberta: chickpea, fenugreek, grasspea, lupin and soybean. The book is fully illustrated in color with over 250 photographs, charts, illustrations and tables. 150 pages.

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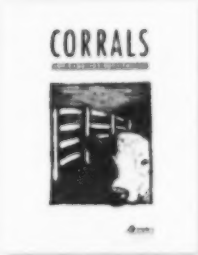

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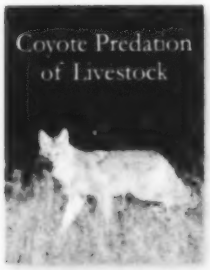

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What is your crop? What stage of growth is it at?
What color is the insect pest? What type of damage do you see?

Your answers are analysed, and the system provides identification information including photographs, video and text. It also features information on biology, distribution, scouting and economic thresholds.

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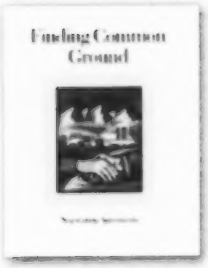

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